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BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a perspective view of an ultrasonic dental insert having a soft grip member in accordance with the invention in a handpiece with a cable.

FIGURE 2 is a cross-sectional side view of the ultrasonic dental insert in a handpiece of FIGURE 1, but without the cable.

FIGURE 3 is a perspective view of the ultrasonic dental insert having a soft grip member of FIGURE 1.

FIGURE 4 is a cross-sectional bottom view of an ultrasonic dental insert having a soft grip member of FIGURE 3.

FIGURE 5 is a perspective view of a soft grip member in accordance with the invention.

FIGURE 6 is a cross-sectional side view of the soft grip member of FIGURE 5.

FIGURE 7 is a perspective side view of half of a nozzle having grip layer.

FIGURE 8 is a perspective side view of half of the nozzle having grip layer of FIGURE 7, and positioned adjacent to an ultrasonic dental insert.

FIGURE 9 is a perspective side view of a nozzle having grip layer affixed to an ultrasonic dental insert in accordance with the invention.

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REMARKS

Ultrasonic dental scaler systems are generally known. Dental practitioners use such systems to remove calculus deposits and heavy plaque from tooth surfaces. Referring to FIG. 1 in the present application, dental scaler systems generally include a power base unit (not shown). A flexible handpiece cable (15) connects a handpiece (10) to the base unit. An ultrasonic scaling insert (14) having a tip (24) is inserted into the handpiece (10). The scaling insert (14), which is based on magnetostrictive technology, vibrates at an ultrasonic frequency to remove the calculus/plaque. More particularly, the scaling insert (14) includes a transducer (22) (FIG. 3) made from a stack of laminar plates comprising magnetostrictive material. The handpiece (10) includes an energizing coil (not shown) that surrounds the scaling insert (14). The energizing coil excites the plates of magnetostrictive material (22) via a magnetic field so that the plates longitudinally expand and contract at ultrasonic frequencies. This causes the tip (24) to vibrate in an elliptical stroke pattern so that it can effectively clean the teeth.

One problem with such scaler inserts is that vibrations from the tip are transmitted to the hand of the dental practitioner and this may cause discomfort. To address this problem, Applicants have developed an insert with a new gripping surface. The soft gripping member of this invention provides a comfortable, non-slip surface for the dental practitioner. The gripping member is made from two separate polymeric components. An elastomeric outer wall reduces the level of vibrations that are transferred to the dental practitioner. A rigid polymeric inner wall allows the gripping member to be snap-fitted or otherwise attached over the scaling insert.

Disposition of Claims

Upon entry of the foregoing amendments, claims 1-3, 5, and 9-20 will remain pending in the application and stand ready for further action on the merits. Claim 1 has been amended to clarify that the soft grip member comprises a rigid polymeric inner wall bonded to an elastomeric outer wall, and the soft grip is affixed to the dental scaler insert in such a manner that the inner wall of the soft grip circumscribes the connector body of the insert. This amendment is fully supported by the Specification, particularly at page 2, third paragraph; page 3, first and second paragraphs; and page 4, first paragraph, and by the drawings. Claim 16 has been amended to clarify that the soft grip is formed by affixing a first half-section member to a second half-section

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member. This amendment is fully supported by the Specification, particularly at page 3, second paragraph and by the drawings. Claim 17 has been amended to clarify that the outer wall is elastomeric and the inner wall is made from a rigid polymer. Dependent claims 4 and 6-8 have been canceled without prejudice or disclaimer of the subject matter contained therein. The limitations of claims 4 and 6-8 have been incorporated into claim 1. No new matter has been added to the application.

Objections to the Drawings

The Office Action first objects to the drawings under 37 CFR §1.83(a), asserting that the drawings do not show every element that is given a reference numeral in the Specification. More particularly, the Specification states "With more particular reference to FIGURES 7 through 9 it is seen that insert 114 has a magnetostrictive stack 122 and tip 124 connected to opposite ends of connector 126." (page 3, second paragraph.) As the Examiner correctly points out, the drawings do not call out the insert (114) or connector body (126). The Office Action requests that corrected drawing sheets, showing the insert and connector elements, be submitted. Accordingly, a replacement drawing sheet (Sheet No. 7) containing amended Figure 8 is being submitted herewith. Figure 8 has been amended to call out the scaler insert (114) and connector body (126). Applicants submit that originally filed Figure 8 should have included reference character (114) and incorrect reference character (128), which calls out the connector body, was a typographical error that should have been written as reference character (126).

The Office Action secondly objects to the drawings under 37 CFR §1.84(p)(5), asserting that Figure 9 includes the reference characters (44) and (134), and the elements called out by these characters are not mentioned in the Specification. Applicants submit that originally filed Figure 9 included two typographical errors. The reference character (44), which calls out the sealing insert, should have been written as character (114). Also, the reference character (134), which calls out the elastomeric outer wall, should have been written as character (131).

The corrections to the drawings are clearly supported by the Specification which states "With more particular reference to FIGURES 7 through 9 it is seen that insert 114 has a magnetostrictive stack 122 and tip 124 connected to opposite ends of connector 126. Connector

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126 supports nozzle 125. Insert 114 has soft grip member 127 having rigid polymeric half nozzle walls 128 and 129 and elastomeric outer walls 130 and 131" (page 3, second paragraph.). In view of the foregoing amendments to Figures 8 and 9, Applicants believe that the drawings now meet all of the requirements of 37 CFR §1.83(a) and request this objection be withdrawn.

Objections to the Specification

The Office Action next objects to the Specification, because it is missing certain sections including "Background of the Invention" and Brief Summary of the Invention." In response, the Specification has been amended as noted above. All of the amendments made to the Specification are supported by the originally filed Specification. No new matter has been added to the application. Applicants now believe that the elements of the Specification are arranged properly and conform to the requirements under 37 C.F.R. §1.77. In view of the amendments made to the Specification, Applicants respectfully request that this objection be withdrawn.

Claim Rejections under 35 U.S.C. §102

The Office Action rejects claims 1, 5-9, 11-14, 17-18, and 20 under 35 U.S.C. §102(c) as being anticipated by Mayer, U.S. Patent Application Publication No. US 2004/0259054 ("Mayer"). It is submitted that the presently claimed invention, as recited in amended claims 1, 5-9, 11-14, 17-18, and 20 is not anticipated over the disclosure in Mayer for the reasons discussed below.

Applicants agree with the Examiner that Mayer generally discloses a grip for an ultrasonic dental scaler insert. Referring to FIGS. 11 and 12 in Mayer, the scaler body (30) is described as being made from a hard plastic material. The scaler body (30) is connected to a magnetostrictive transducer stack (22) at its rear-facing end and to a scaling tip (24) at its front-facing end. As such, the scaler body (30) in Mayer functions as a connector body similar to the connector body (126) in the scaler insert (114) of the subject application. In Mayer, a soft grip portion (50), which is preferably tubular in shape, is described as being fixedly and coaxially attached to the scaler body (30).

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More particularly, the grip portion (50) comprises an outer gripping surface (52) and an inner attachment surface (54), which is attached to the scaler body (30) by a suitable adhesive or overmolding. (See Paras. 0027 and 0029.) The grip portion (50) is preferably made of a soft, cushioned material, such as a silicone rubber or the like, which is easy to sterilize and comfortable to handle. Other suitable grip portion materials may include, for example, natural rubber, neoprene, vinyl, and foam. (See Para. 0028.) That is, the grip portion (50) is a single piece, unitary structure made from silicone rubber or other soft material. The inner surface (54) of the soft grip (50) provides an area for bonding the grip (50) to the scaler body (30). The outer surface (52) of the soft grip (50) provides a handling area that may include ridges (53) to improve handling of the instrument.

As the Examiner recognizes, a claim is anticipated under 35 U.S.C. §102(c) only if each and every element of the claim is found in a single prior art reference. It is respectfully submitted that amended claims 1-20 are not anticipated by Mayer, because there is no disclosure or suggestion in Mayer of a grip member made from two distinctive components, particularly a rigid polymeric inner wall and an elastomeric outer wall as recited in the presently amended claims. In Mayer, the grip portion (50) is made only from a single material such as, for example, silicone rubber.

In view of the foregoing, it is respectfully requested that the rejection of claims 1, 5-9, 11-14, 17-18, and 20 under 35 U.S.C. §102(c) over Mayer be withdrawn.

Claim Rejections under 35 U.S.C. §103

The Office Action rejects claims 2, 10, 15, and 19 under 35 U.S.C. §103(a) as being unpatentable over Mayer in view of Stearns, U.S. Patent 6,095,811 ("Stearns"). It is respectfully submitted that the presently claimed invention, as recited in amended claims 2, 10, 15, and 19, is not prima facie obvious over the disclosures in Mayer and Stearns for the reasons discussed below.

Referring to FIG. 1 in Stearns, a known intraoral dental camera assembly (10) having a known gripping handle (30) is shown. Stearns describes the known gripping handle (30) as

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including a pair of tapered half sections (32, 34), each half section having a curved interior surface (col. 4, lines 11-15). As the Examiner points out, two half sections are "snap-fitted" together to form the gripping handle. However, Stearns fails to disclose or suggest a gripping handle, wherein each half-section is made from two distinct polymeric components, a rigid polymer and elastomeric polymer. As opposed to the gripping handle described in Stearns, the sealing insert of the present invention requires a gripping member made from two half-section members, each member having a rigid polymeric inner wall and an elastomeric outer wall. Applicants have found that such a gripping member provides several benefits. The elastomeric outer wall provides a comfortable and easy grip surface. Vibrations, which normally would be transmitted from the sealing insert to the hand of the dental professional, are absorbed by the elastomeric wall. Meanwhile, the rigid polymeric inner wall provides a smooth and durable surface for attaching the gripping member to the scaling insert.

There is no hint for such a polymeric structure in the disclosure of Stearns, and a person of ordinary skill in the art would have no basis for modifying the teachings therein to produce such a structure. Thus, even if the disclosure in Mayer were combined with the disclosure in Stearns, it is respectfully submitted that the present invention, as recited in amended claims 2, 10, 15, and 19, would not be obvious.

Lastly, the Office Action rejects claims 3-4 and 16 under 35 U.S.C. §103(a) as being unpatentable over Mayer in view of Riso, U.S. Patent 5,775,901 ("Riso"). It is respectfully submitted that the presently claimed invention, as recited in amended claims 3-4 and 16, is not prima facie obvious over the disclosures in Mayer and Riso for the reasons discussed below.

Applicants agree with the Examiner that Riso discloses an ultrasonic dental scaler insert having a grip or collar portion. Referring to FIGS. 1 and 3-4 in Riso, the insert (20) carries an elongated, molded plastic grip or collar (40) which can be made from a polyetherimide resin (col. 2, lines 65-67 and col. 3, lines 1-2). The collar (40) can be assembled by welding together the first and second parts (40-1) and (40-2) (col. 3, lines 41-43).

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There is clearly no disclosure or suggestion in Riso for a gripping handle made from two half-sections, wherein each section includes an inner wall made from a rigid polymer and an outer wall made from an elastomer. The Examiner takes the position that it would have been obvious for a person of ordinary skill in the art to combine the teachings in Mayer and Riso to produce the present invention. However, neither Mayer nor Riso discloses a gripping handle having an inner wall made from a rigid polymer and an outer wall made from an elastomer. Consequently, even if the disclosure in Mayer were combined with the disclosure in Riso, it is respectfully submitted that the present invention, as recited in amended claims 3-4 and 16 would not be obvious.

In view of the foregoing, it is respectfully requested that both the rejection of claims 2, 10, 15, and 19 under 35 U.S.C. §103(a) as being unpatentable over Mayer in view of Stearns, and the rejection of claims 3-4 and 16 under 35 U.S.C. §103(a) as being unpatentable over Mayer in view of Riso be withdrawn.

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Conclusion

In summary, Applicants submit that claims 1-20 (as amended) are patentable and each of the Examiner's rejections and objections has been overcome. Accordingly, Applicant requests favorable consideration and allowance of amended claims 1-20. The Commissioner is hereby authorized to charge any additional fee required in connection with the filing of this paper or credit any overpayment to Deposit Account No. 04-0780. Should there be any outstanding matter that needs to be resolved in the present application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Respectfully submitted,
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Attachments: Petition for Extension of Time
Replacement Drawing Sheets 7 and 8